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THE SOUTHWESTERN MEDICAL ASSOCIATION

Vol. XXV EL PASO, TEXAS, NOVEMBER, 1941 No. 11

Pneumonia Control in New Mexico

(1940-1941)

C. H. DOUTHIRT, M. D.
Santa Fe, N. M.

THIRTEEN STATIONS were established throughout the state where laboratory facilities were available. Laboratory facilities were placed at the displosal of physicians, assuring prompt accurate diagnosis and adequate check of the patient's condition while under therapy. Specific drugs and type specific serum were furnished through the stations. These facilities were made available without cost to patients who were unable to pay for them. Stations did the required laboratory work according to approved fee schedules. The physician's request for these services and medicaments was accepted as indicating that the patient was entitled to receive them.

Based on funds available and estimates of costs of treatment, each station was limited to a maximum number of cases to be treated, although as the program progressed, it was possible to make certain adjustments enabling some stations having heavier demands to treat more cases in lieu of other stations receiving fewer requests. The program was opened November 1, 1940 and terminated June 1, 1941.

Two hundred and sixteen cases were treated with two hundred recoveries and sixteen deaths, a fatality of 7.4%. This is a marked reduction from the 11.9% of last year's program. In view of the United States Public Health Service's stated purpose of arranging programs ". . . designed to aid the medical profession in reducing pneumonia mortality", a 7.4% fatality for all cases, types and age groups assumes considerable significance when compared with the average fatality of about 25% to 30% before introduction of chemotherapy. Cases treated by stations were as follows:

Station		Cases		
		Total	Recovered	Died
1	Santa Fe	8	8	0
2	Gallup	24	22	2
3	Albuquerque	7	7	0
4	Albuquerque	1	1	0
5	Albuquerque	0	0	0
6	Albuquerque	17	14	3
8	Las Cruces	35	32	3
9	Raton	6	3	3
10	Clovis	13	13	0
11	Las Vegas	30	27	3
12	Carlsbad	29	28	1
13	Carlsbad	20	20	0
14	Silver City	26	25	1

It is perhaps worth noting that the three deaths at Station 9 were complicated by or had the following associated conditions: alcoholism and myocarditis, cardiac failure, uremia. This dispells any tentative assumption, based on the figures above, that pneumonia is more apt to be fatal in any particular section of the state.

Total amount of sulfapyridine used was 3,430.7 grams; average per case, 17.2 grams. Some few physicians preferred sulfathiazole which was exchanged for the sulfapyridine issued by stations.

Total amount of serum used was 3,192,500 units; average per case, 51,492 units. While it was suggested that sulfapyridine be administered first with serum to be furnished all cases not responding promptly, or in which sulfapyridine might be otherwise contraindicated, it was, of course, left to the discretion of the physician. Such satisfactory results were obtained

Appreciation is hereby expressed to the United States Public Health Service for providing funds making this program possible; to the hospitals and laboratories serving as pneumonia control stations; to the physicians and health officers for their most excellent cooperation.

with sulfapyridine that one station issued no serum for its twenty-nine cases and at another station serum was found necessary for only one case out of twenty. Some physicians, however, preferred to combine sulfapyridine and serum from the onset. While the percentages given below cannot be considered entirely indicative, due to the great numerical differences in the groups, it is to be noted that the fatality for the group receiving sulfapyridine only compares favorably with that for the group reciving both sulfapyridine and serum. It is felt that a 100% recovery for the group receiving serum only connot be considered significant, based as it is on only two cases.

	Cases			
	Total	Recovered	Died	Fatality
Received sulfapyridine only	146	137	9	6.2%
Received both sulfapyridine and serum	61	55	6	9.8%
Received serum only	2	2	0	0
Received neither	7	6	1	14.3%

It has been pointed out that one of the advantages of chemotherapy in the treatment of pneumonia is its comparatively low cost. For the two hundred and sixteen cases treated on this program the average cost per case was found to be $12.80. While this figure does include administration costs for the whole program, it must also be remembered that in some cases much laboratory work was done in excess of the maximum laboratory fee to which stations agreed to limit their charges.

At one station an arrangement was made between physicians and the hospital allowing all program patients to be treated in the hospital.

	Cases		
	Total	Died	Fatality
Hospital	120	13	10.8%
Home	93	3	3.2%
Both	3	0	none

For the country as a whole the fatality rate in private practice is distinctly lower than that in hospitals since the most severe cases are hospitalized.

ANALYSIS OF CASES

I

	Cases			
	Total	Recovered	Died	Fatality
Broncho pneumonia	63	59	4	6.3%
Lobar pneumonia	152	140	12	7.9%
Final diagnosis influenza	1	1	0	0

II

The two hundred and sixteen cases were fairly evenly distributed between male and female.

	Cases			
	Total	Recovered	Died	Fatality
Male	115	102	13	11.3%
Female	101	98	3	3.0%

Some leading medical authorities state that sex appears to have very little influence on the death rate of pneumonia.

III

Ages ranged from three weeks to ninety-three years:

	Cases			
Age Group	Total	Recovered	Died	Fatality
Under 1	23	18	5	21.7%
1- 4	38	37	1	2.6%
5- 9	18	18	0	0
10-19	20	20	0	0
20-29	27	27	0	0
30-39	28	27	1	3.6%
40-49	21	20	1	4.8%
50-59	19	16	3	15.8%
60-69	8	8	0	0
70-79	11	8	3	27.3%
80 and over	2	0	2	100.0%
Unknown	1	1	0	0

While an almost equal number of males and females were treated, it is extremely interesting to note that there were no deaths among females between the ages of twelve months and ninety-three years. It is also of interest that there were no deaths of either sex between the ages of twelve months and thirty years. Fatality for those under one year was 21.7% (males 17.4%; females 4.3%).

IV

Practically all known types were represented and were fairly evenly distributed in age groups and by sex. All types with the possible exception of Type 2 were fairly evenly distributed throughout the state. There was some evidence that Type 2 was somewhat more prevalent in the southwestern part of the state. Nine cases had more than one type, fifteen were due to streptococcus, seven to Friedlander bacillus, thirty-six were undetermined type and the diagnosis of one case was changed to influenza.

V

Of the two hundred cases that recovered, sixteen cases followed acute infections such as influenza, scarlet fever, measles, etc. Two were post operative. Thirty-three had various compli-

cations and associated conditions; of these, five were pregnant, one of which had empyema and another tuberculosis. Five had otitis media, one had pneumococcus meningitis, another had typhoid fever, empyema and hematuria. Other complications or associated conditions were empyema, tuberculosis, uremia, and various cardiac conditions. Of the total of fifty-one cases showing various complications, twenty-five were male and twenty-six were female. While the number was evenly divided between male and female, it is interesting that of the eight cases showing heart conditions seven were male. The one female having a heart condition was a child twelve months old who was improving under treatment, then died suddenly; the complication was given as cardiac insufficiency.

Of the seven males having cardiac conditions five died. One of these was a child three months old and an autopsy revealed vegetative endocarditis.

VI

Deaths by Types of Pneumococcus:

Types	Cases Total	Recovered	Died	Fatality
2	35	32	3	8.6%
3	11	9	2	18.2%
6	7	6	1	14.3%
7	9	8	1	11.1%
11	4	3	1	25.0%
19	12	10	2	16.7%
20	4	3	1	25.0%
Streptococcus	15	14	1	6.7%
Undetermined	36	32	4	11.1%

ANALYSIS OF DEATHS

Of the five deaths in children under one year of age, three were lobar and two broncho pneumonia. Physicians' comments on four of the case records were as follows:

Case A—"Patient in extremis when admitted. No opportunity to get treatment carried out."

Case B—"Dehydration. Toxic nephritis? Autopsy: Vegetative endocarditis. Patient died before treatment could be instituted.

Case C—"Baby dying when first seen by doctor and on admission to hospital."

Case D—"Death apparently from toxaemia—temperature normal for several days before death."

The fifth in this group was a very interesting case. There were no comments on the case record. According to the laboratory report the first laboratory work was done on the case February 28, 1941. At this time the total white count was 41,000; lymphocytes 54%, mononuclear 3%, eosinophils 2%, polymorphunuclear 41%; red count 5,250,000. Positive for Type 19 pneumococcus, urine showed albumin plus 1 and a trace of sugar.

March 2. Total white count 53,460: lymphocytes 84%, polymorphonuclear 12%, mononuclear 3%, eosinophils 1%: red count 4,350,000.

March 3. Urine showed albumin, sugar and acetone.

March 4. Total white count 46,100: lymphocytes 63%, polymorphonuclear 33%, mononuclear 3%, eosinophils 1%: red count 4,650,000.

March 6. Total white count 56,100: lymphocytes 67%, polymorphonuclear 29%, mononuclear 3%, eosinophils 1%: red count 4,350,000.

March 7. Sulfapyridine discontinued—pneumonia cleared up.

March 8. White count 19,550: lymphocytes 69%, polymorphonuclear 27%, mononuclear 3%, eosinophils 1%: red count 5,250,000.

March 9. Pneumonic condition again appeared. Temperature 104. Pharyngeal smear again showed pneumonia Type 19.

March 10. Total white count 21,450: lymphocytes 64%, polymorphonuclear 34%, mononuclear 2%.

March 11. Suspected whooping cough.

March 12. Total white count 12,700: lymphocytes 74%, polymorphonuclear 20%, eosinophils 2%, basophils 2%, mononuclear 2%.

Comments—This child improved satisfactorily and was dismissed from the hospital March 23. Two days later, March 25, she was readmitted. Pharyngeal smear negative for pneumococci.

March 31. Total white count 4,050: polymorphonuclear 10%.

April 1. Patient died.

During the course of her illness she received a total of 12.5 grams of sulfapyridine and 40,000 units of serum. She was eleven months old.

Physicians' notations on case report cards of fatal cases in other age groups follow:

Age Group: 1-4; No. Cases: 1—Cardiac insufficiency. Baby apparently improving under treatment. Death very sudden.

Age Group: 30-39; No. Cases: 1—Decompensated mitral heart (old cardiac).

Age Group: 40-49; No. Cases: 1—Uremia. Blood urea 79.65.

Age Group: 50-59; No. Cases: 3—Alcoholism, myocarditis. (Leukocyte count dropped to 2,800 after taking four grams of sulfapyridine.) No comments on the other two cases.

Age Group: 70-79; No. Cases: 3—Cardiac failure; congestive heart failure: terminal pneumonia.

Age Group: 80 plus; No. Cases: 2—Tuberculosis broncho pneumonia. No comments on second case in this group.

While results of one such program present nothing of conclusive nature, it is hoped that comparisons of studies of this kind from year to year will result in establishing even more effective methods for the control of pneumonia in New Mexico.

State of New Mexico.
Dept. of Public Health.

Common Skin Diseases

(Dermatitis Venenata and Acne Vulgaris)

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DERMATITIS VENENATA is dermatitis resulting from cutaneous reaction to animal, vegetable, or mineral substances when they touch the skin. All degrees of inflammation from simple hyperemia to actual gangrene are encountered. Most cases are at first erythematous, being sharply limited to the surface touched by the irritant. Later they may become papular and vesicular (eczematous), but are pustular only if secondarily infected. Lesions are at first limited accurately to the site of actual contact, but widespread itching and dermatitis may appear scattered over the body, depending on the development of widespread cutaneous reactivity. Diagnostic is the feature of severe itching with comparatively mild looking dermatitis.

The eruption which results from a single contact with the offending substance is a self-limited one. It disappears spontaneously within a few days or weeks.

Repetitions of contact are usual, however. The response of the sensitive skin may become progressively more intense. The clinical picture and the history that the patient gives depend intimately on the time intervals involved. Daily association with a deleterious agent evokes continuous and chronic disease. Occasional contacts result in occasional flares, the exacerbation being sudden and its subsidence gradual. Thus investigation of etiology requires intelligent questioning of the patient, for periods of freedom from disease furnish clues as significant as periods of activity.

Such morphologic names as erythematous eczema, vesicular eczema, chronic eczema, and fissured eczema, are not sufficient to identify the disease. Dermatitis always has a cause (physical, chemical, parasitic or combined) although the cause may be difficult to identify. Dermatitis due to a dye, paraphenylendiamine for example, might manifest at different times in one person a variety of morphologic forms, ranging from bullous inflammation to lichenification. Merely to name it erythematous eczema at one time and lichen chronicus simplex or neurodermatitis at another time would be to fail to comprehend the phenomena manifested.

I include within the meaning of dermatitis venenata all inflammations of the skin provoked by contact, whether the agent is one which acts with substantially equal effect upon all skins (nitric acid, lye) or is one which acts with widely variable intensity on different skins because of allergy. Dermatitis venenata is often provoked by medicinal agents such as ammoniated mercury. There seems to be no hard and fast line of distinction to be drawn between chemical irritation and allergic intolerance, for whatever irritates may (but not necessarily does) alter reactivity. Experiments indicate that substances must exist which will provoke allergic, eczematous reactions in all persons[2]. One must interpret the hyperergic response as the physiologic response to some irritants, just as purulent inflammation is the expected, physiologic response to Staphylococcus aureus. Wise and Sulzberger (1933)[3], studying the eczematous reaction to butesin picrate, described 3 time periods: (1) refractoriness, which may persist for months despite contact; (2) incubation, while allergy develops in 9 or 10 days; and (3) development of reaction 16 to 48 hours after the contact, after allergy exists.

When one judges from the hands alone, one cannot differentiate between pompholyx due to sensitivity to chemicals of known composition, and pompholyx caused by dermatomycosis of the feet. Dermatitis venenata, however, *is* contact dermatitis, and it is not dermatomycosis or dermatophytid. I think that, if one identified cases of dermatitis venanata, dermatomycosis, dermatophytid, bacterial dermatitis, dermatitis dependent on focal infection (bacterids), dermatitis dependent on food allergy, and combinations of these, then excessively few cases of "eczema" would remain undiagnosed.

The eyelids, which are tender tissue readily capable of becoming swollen and itchy, are generally involved in contact dermatitis. The

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flexural folds (neck, antecubital, popliteal) and the delicate skin of the genital region are generally inflamed in widespread allergic dermatitis. These regions probably are sites of mediate contact, noxae being carried in small amounts by the fingers. Repeated attacks of swelling and itching of the eyelids, with redness, infiltration and loss of flexibility, are always due to dermatitis venenata. While drops containing atropine may be the cause in a given case of itching lids, one must usually seek noxae through the whole gamut of air-borne, water-borne, medicinally or cosmetically applied, occupational, seasonal, or other contacts with any part of the entire body surface. Fungus allergy may provoke exactly similar eczematous response. The eczematous reaction is not different with different allergens.

There is little known about why sensitivity appears. Its onset may be sudden, after years of preceding, innocuous contact. The farmer with ragweed dermatitis[4] is an adult who met the allergen for years without having symptoms of reaction. Infection with fungi is a common contributory cause.

Sensitization from the initial substance may spread so as to embrace other substances of related or nonrelated chemical nature. This phenomenon, observed[5] but not explained, is of practical importance. While it is common for chemical sensitization to succeed dermatomycosis[6]—a matter of especial significance in industrial dermatology—it is likewise common for nonparasitic contact dermatitis to become complicated with parasitism. Dermatitis of the neck may become involved with seborrheic dermatitis from the scalp, or ivy dermatitis of the legs with dermatomycosis from the feet, or contact dermatitis of the hands with moniliid from vulvovaginitis, or perianal and pedal epidermophytosis with superimposed medicinal dermatitis venanata, where it may be impossible to tell which came first—such combinations constitute the confusing cases spoken of as "eczema."

Mucosae,[8] as well as skin, may suffer contact inflammation which does not differ from contact dermatitis. Cheilitis and stomatitis have been caused by many agents, such as toothpaste, prostheses, even mercury amalgam.

Plants[7] are common causes. Dermatitis produced by ragweed,[3] a type which has been intensively studied, occurs in adults and rarely in children. Its features are characteristic of plant dermatitis: the seasonal incidence, annually repeated. During July and August and maximally in September, disappearing with the frost; the redness, swelling and itching of the eyelids and the inflammation of the exposed surfaces, especially the hands, wrists, ankles and face; the exacerbations which occur after hunting, weeding, or otherwise contacting the plant; and the local reaction with distant flare when the patch test is applied.

Since dermatitis venenata is of such significance in industrial medicine,[9] its control assumes important proportions.

Diagnosis of Dermatitis Venenata.—In acute cases (initial reactions) the abrupt onset, the history of exposures, the location, the erythematous and vesicular character of the eruption, and the margins of it, all serve to make the diagnosis of contact dermatitis easy; but to unearth the particular cause is less simple. The longer the dermatitis has endured the more difficult it is, as a rule, to discover the allergen. Flares give clues, for contact must have been made a few hours before the flare. The involvement of eyelids and flexures in cases of comparatively high degrees of sensitivity is diagnostically suggestive.

The manner of reaching the skin influences the location. Allergens of eczematous dermatitis may reach the skin as air-borne dust, settling in greatest concentration on exposed parts, moist parts, and where clothing constricts. Dermatitis caused by shoes[10] is exemplary; vesicular eruptions appeared on the feet when the offending shoes were worn, and disappeared when they were not. Dermatomycosis was ruled out by the relationship with the wearing of the shoes, by the positive patch tests, by the absence of demonstrable fungi, by the severity of the itching which seemed disproportionate with the visible dermatitis, by the freedom of the interspaces from involvement, by the predilection for the dorsum of the foot, and by the sharp margins of the irritated areas. Not all vesicular eruptions on the feet are tinea, impetigo[11] as well as dermatitis venanata of the feet being common.

Prognosis.—The removal of the cause is usually followed, within a few days or weeks, by complete recovery. Repeated attacks are to be expected until the cause is identified and contact is avoided. A known and carefully avoided agent may be met accidentally or inadvertently.

Efforts to desensitize are in general not practically successful.[8] Sensitization may disappear if contact is avoided for many months, or at least the degree of sensitivity may diminish greatly.

TREATMENT

The basic necessities are to remove the cause and to give the patient symptomatic relief while the skin heals. Medical effort is directed at keeping something off the skin, not at pouring something on it. The skin will heal if further irration or bacterial complication are avoided.

The principles of treatment are, in general, the prevention of contact by suitable protection, such as gloves, the chemical detoxification of harmful substances before they have produced damage, the identification of noxae as well as susceptible employees by means of patch tests, and testing of industrial materials before they have been admitted to general use.

If contact has occurred within a few hours, removal of the irritant from the skin may be possible. Soap and water at this time may be highly desirable whereas, a few hours later, this treatment would do great harm. Alcohol or other suitable solvents are used similarly. In ivy poisoning, much allergen may be present even after reaction has set in. This can be neutralized at least in part by the application of 1:100 potassium permanganate solution, which is swabbed on until the horny layer is deep brown. Clinical neutralization of many dermal irritants can be accomplished. Sodium thiosulfate, for instance, counteracts iodine.

Prevention of contact may be obtained in some circumstances by discarding objects, such as shoes or furs. Often it is difficult to convince a patient that one, solitary, momentary contact is sufficient to undo the benefits of two weeks of perfect avoidance. Sometimes mechanical means (gloves, vaseline, boots) or chemical means (baths, soaks, detoxifying agents) may be used to interrupt the contact; or the sufferer may learn what not to touch, or where not to spreal the contact; or a workman may be shifted to a different job.

Such solutions are easy, comparatively, if the allergen is known. While the allergen is not known, the avoidance of every possible agent is desirable. Hospitalization, with complete control of the environment—separating the patient from his home, his clothing, his hair tonic and toothpaste, his garden, potted plants and sofa cushions—is often the most effective way to bring the irritation under control.

Allergic dermatitis may persist for days or even weeks after the cause has been removed. During such a refractory period, a physician, impatient for benefit, changes from one medicine to another in the futile expectation of finding something that will induce healing. As in the case of a wound, healing depends upon the action of the tissues, not on the salve that is applied. In shifting from one agent to another, great risk is run of applying a medicine to which the patient is sensitive. Exfoliative dermatitis has resulted from the application of ammoniated mercury ointment to a minor inflammation, with the development of spreading mercurial dermatitis, not recognized as such and treated with more mercury.

X-ray therapy possesses the ability to desensitize locally. Reactivity generally returns within 2 to 6 weeks after this nonspecific desensitization. If the same, local, hypersensitizational dermatitis is treated with x-rays time after time, the eventual result is an x-ray burn. The cure of dermatitis venenata must be accomplished by removing the cause, not by temporarily destroying the ability of the skin to respond to irritation.

I have found the simplest of medicines the most satisfactory. Vaseline is put on to protect denuded nerve endings, and soft, clean towels, wet with physiologic saline solution are superimposed. This is comforting, and it is as completely bland as I can devise. The patient is denied coffee, and is given aspirin, 5 grains every three hours, unless intolerance[9] occurs, and perhaps elixir phenobarbital, ℥i. as well. What the tired, itching patient wants is respite from bedevilment by his skin; he ordinarily requires no other encouragement to sleep.

If no allergen remains and no secondary infection exists, vaseline and cool tap water compresses are wholly adequate[4], as they are in the treatment of sunburn.

If secondary infection exists, 1 or 2 per cent gentian violet[10] in water may be applied daily, and bichloride (1:10,000) or permanganate (1:5,000) packs or soaks may be prescribed. Mercury intolerance is not rare.

Summary.—One cures dermatitis venenata by keeping something off the skin.

Bryant Bldg.

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Cutaneous Manifestations of Syphilis

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Prior to the discovery of the complement fixation test for syphilis, the only method of diagnosis was by differential analysis of skin lesions. The chancre, the syphilitic roseola, the late secondary syphiloderms, and the cutaneous gumma, with their many variations and locations, presented to the earlier student the data upon which a diagnosis of syphilis was made. It was also a time-table suggesting the duration of the infection, thus giving rise to earlier concepts of primary, secondary and tertiary stages of the disease.

To know, or even to be reasonably sure, that such a lesion was of syphilitic origin, it was necessary to have a comprehensive knowledge of the morphology of the lesions of other skin diseases. For this reason the dermatologist became the diagnostician of syphilis. In spite of modern refinements of laboratory diagnosis this is still true.

Syphilis can and does involve every cutaneous structure from mucous membrane to toenail, and can simulate many common diseases from acne to cancer. The chancre may be typical or atypical, single or multiple. An instance of this in my experience was a chancre at the edge of a finger nail, which caused confusion for some days because of the close similarity to paronychia. Chancre of the tongue can easily be mistaken for cancer. Chancre of a tonsil, or tonsillar pillar, may be confused with an ulcerating Vincent's angina.

A typical chancroid is more frequently than not, the site of a simultaneous infection with the Spirochaete. Herpes simplex of the lip, herpes progenitalis, excoriations such as the so-called "hair cut" may furnish a portal of entry for syphilitic infection without ever presenting the typical Hunterian induration.

Palpation of the urethra in non-gonorrhoeal urethritis, or even in true gonorrhoea, may reveal a suggestive induration. Gland puncture and dark-field, or prolonged observation with repeated Wassermann tests, may show this to be an intra-urethral chancre. Indurated erosions of the cervix may require biopsy for differential diagnosis between chancre and malignancy.

The evanescent nature of the syphilitic roseola is well known. It is often difficult to see. A valuable trick in visualizing this eruption is to have the patient undress in a chilly room. This causes a more marked differentiation against the surrounding blanched skin.

For the purposes of this paper an encyclopedic cataloging of the many and varied cutaneous manifestations of syphilis would be of minimum value. Therefore, I shall present a group of relatively disconnected observations, experiences and quotations in an effort to increase what Stokes (1) calls the "index of suspicion" and to improve the ability with which to apply it.

So called "secondary syphilis" is frequently mistaken for other skin diseases, and other skin diseases frequently mistaken for it. A positive Wassermann is not the criterion of diagnosis. One may have a positive Wassermann and still

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have tinea versicolor, psoriasis, parapsoriasis or a drug rash. I have had young doctors with pityriasis rosea and a guilty conscience ask me if I thought they might have a Wassermann-negative secondary syphilis.

The therapeutic test is not conclusive. Niles (2) has successfully used bismuth in treating erythema annulare centrifugum; which is a painless, non-pruritic, non-syphilitic skin disease. Pityriasis rosea undergoes spontaneous involution and if treated as for syphilis might leave the impression of yielding to therapy. Bismuth is one of the valuable and popular agents in treating lupus erythematosus.

I came very nearly using X-Ray on a pustular follicular spyhilid of the back, referred to me for treatment of acne. She had psoriasis-like lesions of the palms of the hands, and mucous patches in the mouth, or I would have added another to my long list of mistakes. A number of cases of syphilitic alopecia of the typical ragged, moth eaten appearance have sought assistance to correct falling hair. Alopecia of the outer third of the eyebrow is very suggestive of syphilis. Wile and Belote (3) and Cole (4) have called attention to certain cases of alopecia areata associated with central nervous system involvement with syphilis. I have seen two such cases.

Gumma is not as common now as previously. For this reason it is more apt to be missed I am now treating a man for proven syphilis who consulted me for a nodular enlargement of the end of the nose. It closely simulated rhinophyma. The left half of his upper lip was gone. He was worried about cancer, stating that he had suffered this destructive operation of the upper lip for a group of nodules similar to that on the nose. His nose is now normal under anti-syphilitic treatment. Another case with a gumma of the left side of the nose had been heavily irradiated by one of our good X-Ray men. The same man, at the same time considered a typical late circinate syphiloderm on this man's shoulder an impetigo.

Peculiarity of grouping is one of the suggestive things in the late syphiloderms. Peripheral extension with central scarred healing results in a characteristic polycyclic or kidney shape. This can also occur in psoriasis, in ringworm, in granuloma annulare, in seborrhoeic dermatitis and other conditions. Peculiarity in color is a thing to look for. The reddish-brown infiltrated appearance described as "ham-colored" is a helpful hint. However, confusion may arise with the fawn color of pityriasis rosea, or some of the other cutaneous lesions in which some pigmentation occurs. Of course depigmentation may also occur. It would be an unfortunate thing to mistake a condyloma lata for a haemorrhoid!

The question of syphilis in regard to leukoplakia has been pretty well settled by a number of observers. Most of those not previously convinced now feel that smoking is etiologically more important in leukoplakia than is syphilis (5).

With present day emphasis on "athletes foot" one may easily make the error of using Whitfield's ointment on a keratotic plantar or palmar syphilid.

In spite of almost universal pre-natal Wassermanns it is necessary to be alert for the evidence of congenital syphilis. Dennie (6) thinks that the skin manifestations in congenital syphilis are relatively infrequent. However, the presence of mucous patches, fissures at the corners of the mouth, or desquamation of the palms and soles may suggest further study for syphilitic stigmata. Congenital syphilis in the infant is almost consistently Wassermann-positive.

SUMMARY

FIRST—Maintain the "high index of suspicion" but do not be stampeded into a diagnosis of syphilis just because the diagnosis is not at once clear.

SECOND—Syphilis has a tell-tale color, a tell-tale infiltration, a tell-tale configuration. These may not be present in all lesions but often can be found if looked for.

THIRD—Many unfamiliar skin diseases may, to the uninitiated, appear like syphilis. Try to obtain dermatologic consultation if the picture is not clear.

FOURTH—Syphilis may simulate many of the common skin diseases.

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The Permission Necropsy—Its Purpose and Problems

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SYNOPSIS

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Summary.

IN 1931 I had the honor of addressing the Academy of Medicine of Cincinnati. At that time I was engaged in a survey, made for the National Research Council, of the status of legal medicine in the United States. An important field of exploration was the coroner's office and the autopsies done by that agency. Tonight I am to talk upon the permission necropsy, that is, the postmortem examination made with the consent, and often with the expressed desire, of survivors of a deceased person. The purpose of the coroner's autopsy is the determination of the cause of death for medicolegal objectives, especially deaths due to violence of one kind or another. The purpose of the consent autopsy is quite different, although the findings may have a direct medicolegal bearing, especially when matters of insurance are involved.

PURPOSE OF THE AUTOPSY

The autopsy is an old topic and perhaps nothing new is to be added to it. But the subject must be brought into consciousness from time to time, lest we forget what the medicine of today owes to the autopsy, and forgetting that, that medicine will stand still or even retrogress. It may be supererogatory to discuss with a medical audience the purpose of the autopsy, but the present and future purpose finds its answer in past development.

The Autopsy and the Past Development of Medicine

It is not exactly fair to speak of what the autopsy has done for medicine and humanity in the past as a purpose. Earlier observations were not purposeful. They were made and described before there could be interpretation or even understanding. The most important effect of such earlier observations was the development of the subject matter of pathology, and this in turn formed the basis for rational and intelligent medicine.

The earliest prehistoric picture writings depict abnormalities of the external surface of the body. The Egyptian art of embalming and preparation of mummies required disemboweling. This brought to light deviation from the normal in the internal organs. These were duly recorded and in time could be interpreted. But a beginning of real knowledge could not be made until dissection of the human body for the purpose of studying anatomy became permissible. In the sixteenth century there occurred the flowering of anatomy that added so much along so many different lines to human knowledge. Increasing knowledge of the abnormal was an inevitable outgrowth of the

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anatomic studies that became possible with dissection. The anatomist of the sixteenth century was the embryo pathologist. In Morgagni he became the full fledged pathologist. The latter's anatomic studies, Adversaria Anatomica (1719), were followed by his even more pretentious tome, The Seats and Causes of Disease (De Sedibus et Causis Morborum, 1761). This was the first comprehensive treatise on pathology. Note that Morgagni was as much interested in the causes of diseases as in their seats and the changes brought about by them. For the modern pathologist also, cause is as important as effect, the latter being disease itself. Forty-two years elapsed between Morgagni the anatomist and Morgagni the pathologist. He cannot be accused of having rushed hurriedly into print with his observations on pathologic anatomy. Even with forty-two years of experience the pathologist of today feels that he can still learn something from every autopsy.

By the early part of the eighteenth century pathologic anatomy was well grounded as a medical discipline, but the art of medicine, meaning clinical medicine, was still too empiric. The nature of disease was not yet fully understood, although its anatomic background had gradually emerged from darkness. Disease was still something mysterious, something foreign to the body, something added to the normal state rather than derived from it. There was required an expansion of biologic knowledge broader than existed in the field of pathologic anatomy. The development of the cell doctrine by Schleiden, the botanist, in 1838 and by Schwann, the anatomist, in 1839 was such a broadening influence. But it was not until the publication in 1858 of Virchow's Die Cellulare Pathologie that the cell doctrine completed the groundwork of pathology. It became possible to understand that abnormal states have their foundation in normality. Logic and reason, rather than philosophic speculation, could be applied to the unraveling of the mysteries of medicine. This more exact knowledge of disease was the outgrowth of pathology as developed at the autopsy table and in the laboratory. Pathology became, as it still is, the foundation for all the clinical branches of medicine.

The Autopsy and Continuing Development of Medicine

Medicine having reached its present high development through the autopsy, it may be asked why continue to make postmortem examinations? The answer is that medicine is not yet a completed science and will never become so. Many disease processes are still incompletely understood. Only by continued postmortem studies can new disease entities be discovered and older observations be confirmed, elaborated, and established as fact. To look upon scientific medicine as finished and as no longer needing the help of the autopsy would be a decided step backward.

The Autopsy in Modern Medical Teaching

Since pathology is the keystone of medicine, the medical student must be well grounded in this discipline if he is to have a proper understanding of disease. His success as a practitioner will depend largely upon the extent to which he can correlate clinical signs and symptoms with anatomic findings. He can gain this knowledge only by observing at the autopsy the changes wrought by disease, and by carrying his study of autopsy material still further into the fields of microscopic pathology, physiology, and chemistry.

Medical teaching is good teaching to the extent that it keeps constantly before the student and the intern the pathologic background of the clinical subjects of the curriculum after the completion of the fundamental course in pathology. He will become a good physician if he can visualize, in his living patients, the anatomic, physiologic, and chemical changes in the internal organs that might produce the observed signs and symptoms. He can become such a physician only by repeated correlation during his student days of autopsy findings with the clinical signs and symptoms noted before death.

The Autopsy as a Check on Clinical Diagnosis

The diagnostic acumen of the physician must of necessity vary with the individual; with his medical teaching and the ability to absorb that teaching during his student days; with his training and experience following the medical school days; with his diligence in perfecting himself in observation and physical diagnosis. The most astute diagnostician would be the last to claim for himself one hundred per cent infallibility in bedside diagnosis, even with all the help he can obtain from the clinical and roentgenologic laboratories and from specially devised apparatus. Only by following

the carefully-studied patient to the autopsy table can he determine where and why an error in diagnosis was made or why something may have been overlooked.

From time to time in the past, in some of the better hospitals in the country, tabulations have been made of the degree of agreement or disagreement between the clinical diagnosis and the anatomic diagnosis. The percentage or error varies in different categories of disease. It is highest in associated or minor lessons that may have been overshadowed by a main or predominant condition. If such studies have for their aim the "showing up" of clinical medicine as a whole or the individual clinician, they are valueless. Their purpose should be the stimulation of more careful observation and more thorough study of living patients. Taking things for granted leads to poor work in any line of human endeavor.

The Autopsy and Vital Statistics

The reporting and tabulation of causes of death and the practical application of the knowledge gained therefrom have done much to lengthen the span of life and to improve the condition of mankind. But not one death in a hundred is subjected to postmortem examination in the country at large. The cause of death as listed on a death certificate is therefore a clinical diagnosis. It may be correct. But it may also be incorrect, and it almost certainly is incorrect in a variable and not insignificant percentage. The value of vital statistics will be increased in proportion to the decrease in the factor of error in reported causes of death.

In attempting to arrive at more accurate information on the incidence of cancer, the autopsy may be very important. In a survey of the postmortem examinations at the Cook County Hospital in Chicago, Professor H. Gideon Wells found that early and small cancers had not been recognized before death in a not inconsiderable proportion of deaths coming to autopsy. It may be just the early and unrecognized internal cancers that may ultimately give us the most important information on the origin and nature of this dread disease.

Value of the Autopsy to the Family

It should be a mater of satisfaction for the surviving relatives of a deceased person to know exactly what conditions were present at the time. It should be a source of gratification to know that everything that could possibly be done in a medical way had been done.

Heredity is undoubtedly an important factor in disease. But to what extent it may operate cannot be determined until the family history of disease in the ancestry of the individual is more accurately known. One wonders how many persons there are in the United States who know exactly, as the result of autopsy, what abnormal conditions were present in their four grandparents. Certainly the geneticist would not attach much value to such meager data.

The exclusion of certain diseases is sometimes a matter of concern to members of a family. Many persons do not like the idea of tuberculosis or cancer in the family. Both of these conditions must frequently go unrecognized.

LEGAL CONSENT FOR AUTOPSY

Except in deaths referred to the coroner or medical examiner an autopsy may not be done without legal consent. Insurance contracts that give to the insuring company the right to have a postmortem examination made have been held to be valid. We are concerned here only with those necropsies that are performed with the consent of the proper survivor.

The Form of Necropsy Permit

Vermont is the only state that requires the consent for autopsy to be in writing. In all other states verbal consent is sufficient. However, most hospitals, for their own protection, require a written permit properly witnessed.

Some hospitals use the simplest form of permit. This states the relationship of the signer to the deceased and authorizes an autopsy without any restrictions. If restrictions are made at the time of signing, such as examining the brain or limiting the examination to the abdomen, they are written in at the time of signing. At the other extreme is the very complete form suggested by Woodward', until recently chief of the Bureau of Legal Medicine of the American Medical Association. A somewhat less complicated form and one which introduces a principle not found in the permits of most other hospitals is that in use at the Johns Hopkins Hospital. This form recognizes the validity of verbal consent and does not require a relative's signature at a time when the latter may be emotionally upset. Verbal con-

sent is given to the attending physician or resident in the presence of a witness. The physician then fills out the printed form, stating that permission has been given by the proper surviving relative.

By far the largest number of autopsies are done in hospitals on patients who have died in the hospital. The physician frequently can and more often should obtain permission for necropsy on patients who have died at home. The examination is then made in the home or undertaking establishment. In regard to the latter it is to be noted that many of the more modern establishments have very excellent facilities for postmortem examination, facilities better than those of many hospital morgues. When an autopsy is to be done outside the hospital, the physician should protect himself and the pathologist, as well as the undertaker, by obtaining a written consent. In the hospital with which I am at present connected the autopsy permit becomes a part of the protocol and is filed with the clinical record.

Who May Give Consent

Legal consent for autopsy can be given only by the next of kin. This is the surviving spouse, if there is one, except in those instances where husband and wife have been separated althongh not legally divorced. After the spouse come the adult children. In the case of a dead child the father may grant consent; if he is not living, the mother. The degree of kinship relative to the right to grant permission follows the usual rules for the inheritance of property. A minor or mentally incompetent person may not grant permission except by a legally constituted guardian.

A problem arises when there are two or more survivors of an equal degree of kinship, such as two or more children or siblings and so forth. This question is not covered by statute and does not appear to have reached the higher courts. A court would probably hold that the survivor who takes custody of the body and defrays the burial expense is the one who has the right to give consent for autopsy. If the custody and burial expense are to be shared by survivors of an equal degree of kinship and if there is controversy among them as to the granting of permission for necropsy, it would seem advisable to forego postmortem examination unless and until the survivors come to an agreement among themselves.

Antemortem Consent

Courts have held that a person may not, during his life, grant consent for autopsy. Postmortem examination by the testementary will of the decedent is another matter. In most of our states courts have held that a decedent may so specify the disposal of his body after death, and a number of states have enacted statutory provisions to this effect. That a clause in an insurance contract authorizing necropsy is valid and has already been noted.

Who Should Seek Consent

Who should seek permission for the performance of postmortem examination may be a debatable question. In my opinion the first responsibility falls upon the attending physician. He knows the family best and if he has impressed them favorably with his care of the patient, the family will be guided by his wishes. He is, furthermore, the person most concerned in learning the facts that an autopsy may disclose. Unfortunately, many physicians neglect their duty in this respect. Credit for a high autopsy percentage should go directly to the attending physician. The surgeon who is called in as a last resort to perform an operation is usually less successful than the family doctor, because he has little contact with the family. He is apt to be blamed for the fatal termination following an operation. However, some surgeons are so skilled in presenting matters to the family that they are more successful in obtaining permission for necropsy than the family physician. In this respect as in many others there are wide variations in the skill of surgeons and internists.

Next in line come the interns and residents. If they have conducted themselves properly in the presence of the family, if they have manifested intelligent and considerate care of the patient, and if they have tried to explain features of the case that seem mysterious, they may be and usually are the most important factor in obtaining permission for necropsy. If it were not for them, the necropsy percentage for most hospitals would make a sorry showing.

The pathologist should not personally try to obtain permission for necropsy. He has had little or no contact with relatives during the patient's illness. If he is known as the hospital pathologist, whose duty is understood by the

laity as being that of making postmortem examinations, he may be suspected of having a purely personal motive in asking for an autopsy.

Retention of Organs

Courts have held that a simple permission for the performance of an autopsy does not give the right to retain organs removed during the course of postmortem examination. Only so much material as may be necessary to complete and establish the exact cause of death may be kept for further study. Strict adherence to this rule would greatly impair the teaching of pathology. Fresh autopsy material is necessary for the student courses in pathology and for the continued education of the hospital staff in the clinical-pathological conferences conducted in most first-class hospitals. A museum of permanently mounted gross specimens is a necessity for properly organized teaching.

Many embalmers would prefer that organs removed at autopsy be not replaced in the body, since better preservation of the body can be obtained if the internal organs, which most quickly undergo postmortem putrefaction, are not replaced. But neither the pathologist nor the mortician dares withhold organs in the face of implied restrictions. This important phase of the necropsy problem can be easily covered by a clause in the autopsy permit authorizing the pathologist to retain such organs as may be necessary for teaching or further study.

OBJECTIONS TO NECROPSY

As has been noted, permission is necessary for the performance of an autopsy. If there were no objections to granting permission autopsies would become universal, to the great advantage of medical science and to the better knowledge of the ancestral medical history of the individual. But objections do arise. This must be admitted and the attempt made to overcome objections in an intelligent and honest manner.

Objections on the Part of Survivors

Since it is the relative of nearest kinship who must grant permission for necropsy, objections ultimately go back to this source. The objection may be purely sentimental; there may be deep-seated abhorrence of the thought of autopsy. If this feeling cannot be overcome by a simple statement of the nature and purpose of postmortem examination no further attempt should be made to break down the sentiment that exists. Sentimental feelings should be respected.

In most instances objection to autopsy is not due to sentimental feeling, but is the result of a failure to understand the purpose and nature of postmortem examination. Objection is raised that the examination has for its aim "experimentation" or "curiosity" or that it will result in "mutilation" that will render the body unfit for inspection. The mind of the laity must be freed of such considerations. The pathologist does not experiment on dead bodies. He has no time for idle curiosity. If the pathologist and embalmer do their work properly, there is no visible mutilation; the appearance of the body is often better after autopsy than before. It is interesting to observe at times with what ease these objections, as well as sentiment, are forgotten when the family realizes that an autopsy may be a factor in the collection of insurance.

Religious Objections

An objection not infrequently raised against the granting of permission for necropsy is that the religious beliefs of the family will not permit such treatment of the body. It is especially Jews and Catholics that are said to raise religious objections to autopsy. In 1926 Christian,[2] of Harvard, criticized Jewish hospitals for their low autopsy percentages. In the following year, Joslin,[3] of Boston, stated that in twenty-eight years of medical practice he had seen autopsies on only two Jews. This criticism no longer appears valid. In 1930 the permission percentage of four of the larger Jewish hospitals in the United States varied from 50 to 80 per cent, with an average of 62 per cent for the group. While autopsy percentages have increased progressively in Jewish hospitals, the percentages on Jews in non-sectarian hospitals is decidedly lower than among Gentiles in the same hospital and in Jewish hospitals in general. Saphir[4] ascribes this difference to a better understanding of Jewish psychology by the staffs of Jewish hospitals than prevails among the visiting and resident staffs of nonsectarian hospitals.

The attitude of Jews toward postmortem examination has received much learned discussion by Hebrew scholars. Saphir summarizes the discussion as follows: "Extensive investigation, while revealing no statements encouraging dissection of the body, has revealed nothing in the

Jewish religion which forbids a postmortem examination."

Although there has been some difference of opinion in the interpretation of Old Testament, Talmudic, and rabbinic law by Jewish scholars, there certainly is nothing in the Christian religion that can be interpreted as a prohibition of postmortem examination. Upon this score there is no reason why Catholics should raise objections to autopsy.

My first experience as a pathologist was gained in a Catholic hospital during the year of the death of Pope Leo XIII, perhaps the best beloved by Catholic and non-Catholic alike among modern Popes. On the day following his death our newspapers carried a statement of the findings at the autopsy performed by the three then leading pathologists of Italy. Permission for necropsy thereafter was much easier to obtain, and the Sister Superior often authorized an autopsy, secure in the assurance that the family would sign a permit. In my present position I have never been aware, in the course of more than eleven years, of any objection raised by the authorities of the hospital. Upon a number of occasions permission for necropsy has been obtained by a priest. One priest has himself signed the permit authorizing autopsies on his only sister and brother, and has expressed the wish that his body be subjected to postmortem examination when the proper time arrives.

In fourteen Catholic hospitals of the Chicago area, the autopsy percentages in 1939 varied from 20 per cent to 48 per cent, with an average percentage for the entire group of 33 per cent. This is exactly the same as the average for sixty-three hospitals of the Chicago area reporting in 1939.

There seems to be no actual reason why religious belief should be raised as a bar to autopsy, among either Jews or Gentiles. Religion is an excuse, not a reason, for objection to postmortem examination. The prohibition has its root, not in religion, but in a failure to understand the purpose of the autopsy. Upon occasion it is the result of sheer lack of intelligence which is a bar to reason and logic. It is the medical profession that must educate the lay public if autopsies are to become more universal.

Objections of the Mortician

It is, unfortunately, not too rare an occurrence for an undertaker to advise the family not to permit an autopsy. The family may be quite willing and anxious for an autopsy, but cannot be blamed for withholding permission if told by the funeral director that he cannot properly prepare the body after necropsy. The family should seek a more competent undertaker when confronted by such a statement. The properly trained modern embalmer knows that he can do a better job by the six point method of injection. He also knows that he can do better arterial injection of this kind in a body that has been opened. And he knows finally that his work will be more satisfactory if the vascular system has been drained of blood. I have yet to hear an objection from an embalmer of this type.

The mortician and his embalmer do have legitimate cause of complaint in certain instances. They have the right to object to unnecessary incisions where they will show after the body is prepared for inspection. They object rightfully if the main arteries of the arch of the aorta are severed in such a manner that the vessels retract, making them difficult to find. The vessels should be ligated, with the ligatures left long enough to be readily found or they should be canulated. In my own experience embalmers prefer to do their own canulating, provided the main arteries have not been cut too short.

Another just cause of complaint is delay in making the body available to the mortician. He is quite right in wishing to get at his part of the work as soon as possible. The delay may be due to failure on the part of the pathologist to begin the autopsy soon enough after permission has been obtained. Such delays should not occur if the hospital has a fulltime pathological staff. They do occur if the pathologist is on a part-time bases and serves several hospitals. In every instance, when an autopsy is to be done the mortician should be notified of this fact at once and told that he will be notified again when the autopsy will be completed. He will thus be saved the expense of an unnecessary trip to the hospital.

Another source of delay is failure of the attending physician to make out the death certificate promptly. If he fails in this respect it may be necessary for the undertaker to make a trip to the physician's office or another later visit to the hospital. The cooperation to which

the mortician is entitled should obviate delays.

Objection of the Physician

Perhaps the most reprehensible factor in failing to obtain permission for necropsy is the physician who not only makes no attempt himself to obtain consent, but explicitly forbids the resident staff to make an attempt at obtaining permission. The physician who does this lays himself open to the suspicion that the dead body may reveal something that he might not wish revealed. Such a procedure should be a bar to staff promotion or other staff preferment.

OVERCOMING OBJECTION TO NECROPSY

Overcoming objection to autopsy requires, in addition to the proper attack and method of approach in the individual case, consideration of several factors. Most important of these is education.

Education of the Physician

One regrets to admit it, but the medical profession itself needs considerable education. It needs to be reminded from time to time that further advance can come only from continued postmortem examinations. The individual physician needs to be assured that error in diagnosis is not reproachful, but that burying an error without having detected it and learned something thereby is a form of self-complacency that does not make for better medical practice. Christian[2] wrote, "In my judgment, the hospital that has few necropsies is a hospital in which the staff lacks many qualities that go to make up the best type of medical man; often the staff lacks the courage to have a showdown of its diagnostic ability, a form of cowardice hardly consistent with the highest ethics and a real desire for progress. Most important is the fact that, without necropsies, the physician in charge of the case fails to realize his diagnostic deficiencies; he probably has ceased to progress in his medical knowledge and may even have retrogressed. There can be no poorer leader and teacher than he who no longer recognizes his limitations." These are strong statements but unfortunately too often true.

Education of the Laity

The laity should be made to understand the purpose of postmortem examination. That it is not a wanton procedure undertaken to satisfy the curiosity of an individual pathologist, but that it is a scientific procedure whose aim is the furthering of medical knowledge in general and the discovery of facts important to the attending physician and the family.

The layman should understand that the autopsy, properly done, is not mutilating. Better appearance and better preservation of the body, which are the aim of the embalmer's work, can be attained if there has been an autopsy than if there has not been. The examination does not desecrate the dead but honors him; it is the final thing that he can do for the good of humanity. It should become generally known that religious tenets do not prohibit postmortem examination. Even the ritualistic orthodox Jewish admonition against touching a dead body gives way to the right of examination if the latter may furnish information that might be of help to other members of the family and of the community.

How the laity is to be educated to the desirability of necropsy is a different problem. An organized campaign for information of the public might be helpful. Most important is the attitude of the medical profession itself. If it is "sold" on the idea of the importance of postmortem examination, it can in turn sell the public. But if the profession or the individual physician takes an air of satisfied complacency with conditions as they are, there is little hope for improving the present state.

Education of the Pathologist and Mortician

Some undertakers manifest an unyielding opposition to postmortem examination. If the opposition is based upon poor technic on the part of the pathologist, it is justified. The pathologist must realize that the mortician has a duty to perform and that nothing should be done that will jeopardize the relation between client and mortician. The latter, on the other hand, should not interfere with attempts to obtain permission for necropsy and he should realize that the medical profession will do everything possible to obtain permission in every death. A spirit of cooperation should exist between the two professions, to the mutual advantage of each. If the mortician interferes for no reason other than his own incompetence or prejudice, the hospital or physician should recommend another undertaker whenever the opportunity to make a recommendation arises.

National Agencies

A number of agencies, national or local in scope, have done and are doing much to im-

prove the autopsy situation. The Council on Medical Education and Hospitals of the American Medical Association requires a minimum of 15 per cent of necropsies and a minimum of thirty-six necropsies per year for approval of a hospital for internship. A tabulation (p. 1069) in the latest report[5] of the Council reveals that the total number of approved hospitals reporting to the Council increased from 578 in 1926 to 718 in 1940. During this same period the number of hospitals with 70 per cent or more of necropsies increased from 14 to 41; with 50 to 69 per cent, from 21 to 106; with 30 to 49 per cent, from 68 to 334; 15 to 29 per cent, from 146 to 229. The most striking feature of this tabulation is a decrease in the number of hospitals with a necropsy percentage of less than 15 from 329 to 8. The report shows that a total of 77,277 necropsies in 1938 represented 37.6 per cent of the deaths available for postmorten examination in approved hospitals. In 1940 the number of necropsies had increased to 81,849 and the ratio to 38.9 per cent. These figures indicate a decided improvement.

The American Hospital Association in 1938 published the report[4] of its Committee on Necropsies. This report contains eleven articles by various authors, that cover the various aspects of the autopsy. This material is of great value.

The National Selected Morticians is an organization that admits to membership a single mortician in each of a number of large cities. It maintains a research and educational department and is engaged in bringing about better cooperation between the medical and undertaking professions in the matter of autopsies. As part of the latter program it has prepared for general distribution a brochure on the social, legal and technical aspects of the autopsy and has prepared two technicolor films. One of these shows the performance of a complete autopsy, and the other the embalming of a necropsied body.

Local Agencies

What I shall have to say about local agencies relates to two organizations active in the Chicago area. Their various activities include the promotion of autopsies. It is possible that similar agencies may exist elsewhere. If not, they can serve as models.

In 1919 the Institute of Medicine of Chicago appointed a standing committee on necropsies. Each year since then this committee has received and published data relating to permission necropsies in the hospitals of the Chicago area. There is nothing coercive about the rendering of reports. A spirit of wholesome rivalry has been developed which causes additional hospitals to submit data each year and stimulates hospitals with low necropsy percentages to try to approach the figures of more successful hospitals.

In 1919 thirty-six hospitals with 7,304 beds reported to the Institute committee 7,834 deaths with 789 permission necropsies, a percentage of 11.4. In 1939, the year of the most recent tabulation,[6] sixty-three hospitals with a bed capacity of 20,137 reported 403,646 admissions, 18,611 deaths and 5,454 necropsies with a necropsy percentage of 32.8. Not only has the number of reporting hospitals almost doubled and the total number of autopsies increased almost sevenfold, but there has been a progressive increase in the figures of the individual hospitals. In 1919 there was only one hospital with a percentage as high as 48.4 and only five with percentages of 20 to 25, whereas in 1939 there were eighteen hospitals with percentages of 50 or over, twenty-nine with percentages of 30 to 49, eleven with 20 to 29, and only three with percentages below 20.

What the efforts of the necropsy committee of the Institute of Medicine of Chicago have meant for the individual hospital is best illustrated by the trend in the two hospitals in the Chicago area with which I have been connected during two consecutive periods from 1916 to 1929 and 1929 to the present time. In one of these the necropsy percentage increased from 9 in 1919 to 52.3 in 1929, and in the other hospital from 18.6 per cent in 1927 to 41.1 per cent in 1939.

Such a decidedly improved trend as the above figures indicate must be reflected in better medical practice throughout the local area. In its earlier reports the committee on necropsies of the Institute of Medicine of Chicago placed the blame for the poor showing which then existed squarely on the shoulders of the attending staffs of the hospital and stated that the autopsy percentage of a hospital is an index of the scientific intelligence and attainments of the medical staff. Of the present improved state the committee, in its most recent report, said: "The increase in necropsies reflects the greater interest of the hospital staffs in improvement

in the quality of diagnosis and treatment of patients. Among many other factors which have contributed to the increase . . . have been the better understanding by the public of the desirability of necropsies, the beter cooperation between physicians and undertakers, and the improved technic of pathologists." This is a succinct summary of what is required to bring about improvement in autopsy statistics.

The second local agency deserving of much credit is an organization of morticians and embalmers known as Funeral Services Associated. This organization has done much to bring about better cooperation between physician and undertaker. A little over a year ago this organization formed an educational committee composed of one representative of each of the following: Chicago Medical Society, Institute of Medicine of Chicago, Chicago Pathological Society, Chicago Hospital Council, Cook County Hospital, Chicago Board of Health, Coroner of Cook County, Chicago Association of Embalmers to the Profession, and Funeral Services Associated. The primary function of this committee was to sponsor a meeting, held March 19, 1940, open by invitation to physicians, hospitals administrators, funeral directors, embalmers, and others who might be interested. At this meeting short addresses on the various aspects of the autopsy were presented and the technicolor films prepared by National Selected Morticians were shown. The success of this meeting, at which the attendance was almost 1,000, was so great that the educational committee was made permanent.

The educational committee meets every other month to discuss any problems which may have arisen. If a hospital or physician asserts that an undertaker has obstructed an autopsy, or if an undertaker complains of improper autopsy technic, undue delay, the condition of the body, or any other alleged fault, the complaints are investigated by the educational committee. The latter's findings are communicated to the complainant and to the institution or individual against whom the complaint was lodged. During the past year the committee has had only two complaints for investigation. When the functions of the committee are better understood there will probably be more work for it to do.

An agency like the educational committee of Funeral Services Associated should be very helpful in overcoming objections to autopsy and in bringing better cooperation and mutual understanding among the various elements concerned. Funeral Services Associated takes the stand that the autopsy is a matter for the physician and family of the deceased to decide and that the mortician has no right to object to a properly done postmortem examination. Obstructive morticians are in the minority. Every pathologist probably knows a number of funeral directors that not only do not raise objections to autopsy but are actually helpful in obtaining consent for necropsy.

SUMMARY

In the course of the past two or three hundred years postmortem examination of the human body has led to the development of pathology as a fundamental medical science and to the establishment of a rational system of medicine.

Medicine is not a completed subject. Continuing application of pathology, in its subdivisions of pathologic anatomy, histology, physiology, and chemistry, is necessary if medicine is to continue to advance. Medicine must not be permitted to become static, lest it stagnate and retrogress.

The necropsy is essential for the instruction of medical students, interns, and residents.

The good physician checks the results of his clinical study during life with the necropsy findings. The autopsy percentage of a hospital is an index of the scientific acumen of its staff.

The accuracy of vital statistics increases in proportion to the ratio of postmortem examinations made.

The necropsy is important to the family of a deceased person not only in confirming the main cause of death, but also in discovering other conditions not detected during life and in determining the constitutional make-up of the family.

In deaths not referred to the coroner or medical examiner, consent of the next of kin is a necessary prerequisite to necropsy.

Such consent should be, but need not be, in writing. Verbal permission is adequate in all the states except one.

The duty of seeking consent for necropsy falls primarily on the attending physician. His neglect in this respect places the burden on the resident staff.

The physician who prohibits the resident staff from asking for consent for autopsy and

himself makes no attempt in this direction lays himself open to suspicion.

Objection to necropsy rests largely upon failure of the public to understand the desirability of postmortem examination.

Religious objection is an excuse rather than a reason for objecting to necropsy.

The mortician who objects to necropsy by a competent pathologist on the ground that the examination interferes with embalming is lacking in familiarity with modern embalming technic.

Overcoming objection to necropsy is a matter of education.

The laity should be taught the desirability, importance, and value of postmortem examination. Such education is a function of the medical profession.

Before the profession can educate the laity some physicians must themselves first be educated. Error in diagnosis is no disgrace. But unwillingness to detect possible error through failure to procure an autopsy is an undesirable state of affairs.

The mortician should realize that the question of necropsy is one for the family and physician to decide without outside interference.

The pathologist must do his work in such manner as will not interfere with the later care of the body by the undertaker. A spirit of cooperation should prevail between the medical and undertaking professions. Each must recognize the rights and functions of the other.

National organizations like the American Medical Association, the American Hospital Association, and National Selected Morticians have done much to improve conditions.

Local organizations, such as the Institute of Medicine of Chicago and Funeral Services Associated, counterparts of which may exist in other localities, are important factors in increasing necropsy percentages in local areas.

St. Francis Hospital

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Effects of Electromagnetic Radiations on Flocculation Tests For Syphilis

EDWARD L. BREAZEALE, M. S.

Tucson, Arizona

III. THE EFFECT OF ULTRAVIOLET RAY AND DIATHERMY SHORT WAVES ON ANIMAL SERA.

THIS is the third of a series of papers dealing with the effects of electromagnetic radiations on the various flocculation tests for syphilis. In the two previous papers (1 and 2) the effects of violet rays and diathermy short waves on flocculation tests on human sera were discussed. This paper will deal with the effects of ultraviolet rays and diathermy short waves (12 m) on animal sera in respect to the Kline diagnostic, Mazzini and Leiboff tests for syphilis.

Porro (3) and Greene and his associates (4) have pointed out that animal sera gives a very high percentage of positive reactions to the various tests for syphilis. However, no explanations were offered for their observations. These studies were undertaken in an effort to determine if the active substance bringing about the reaction in the animal sera was the same, or some related substance, of that producing the reaction in luetic human sera.

EXPERIMENTAL

Sera from blood samples of horses, goats, cows and turkeys were heated in an electrically controlled water bath at 56 degrees C. for 30 minutes, then removed, cooled to room temperature, and examined by the Kline, Mazzini and Leiboff tests. The results obtained constituted the control reactions. Strict care was observed in following the author-serologists directions in carrying out the various tests.

Following inactivation, the sera were measured onto glass slides, antigen added, and exposed to the ultraviolet rays following the tech-

nique described in a previous paper (1), for a period of five minutes. Sera alone were irradiated for a period of 60 minutes at a distance of 24 inches from the lamp, and examined by the three tests. These sera were then held at ice box temperature over night and re-examined at the end of 24 hours. The method of exposing the sera-antigen mix to the diathermy short waves was the same as used in the second paper of this series (2).

RESULTS

The three tests used agreed in every case. Table I shows the results obtained using the various animal sera and irradiating with the ultraviolet ray lamp at a distance of 24 inches.

Breazeale Research Laboratory.

TABLE I

Effect of Ultraviolet Rays on Flocculation Tests Using Animal Sera

Animal	No.	Control	Sera and antigen, 5 min. exposure	Sera alone, 60 min. Exposure	Sera alone, 60 min. Exp. Held 24 hours
Horse	200	all 4+	all 4+	all neg.	all neg.
Goat	30	1-2+ 12-3+ 17-4+	all 4+	all neg.	1-2+ 12-3+ 17-4+
Cow	120	all 4+	all 4+	all neg.	all 3+
Turkey	75	2-1+ 12-3+ 43-3+ 18-4+	all 4+	all neg.	2-1+ 12-3+ 43-3+ 18-4+
Total	—	—	425		

Table II shows the results obtained using the short wave diathermy for a time interval of 5 minutes.

TABLE II

The Effect of Diathermy Short Wave on Flocculation Tests Using Animal Sera

Control Reaction	Total No. Examined	Reactions Obtained: negative	1 plus	2 plus	3 plus	4 plus
1 plus	Turkey-2 Goat-0 Cow-0 Horse-0	Turkey-2				
2 plus	Turkey-12 Goat-1 Cow-0 Horse-0		Turkey-12 Goat-1			
3 plus	Turkey-43 Goat-11 Cow-0 Horse-0		Goat-1	Turkey-43 Goat-5	Goat-5	
4 plus	Turkey Goat-18 Cow-120 Horse-200	Goat-1	Goat-2	Goat-11 Horse-200	Goat-4 Cow-120	Turkey-18
TOTALS	Turkey — 75 Goat — 30 Cow — 120 Horse — 200					

If the sera-antigen mix was allowed to remain in the active field of the diathermy for a period of 25 minutes all tests became strongly positive, 4 plus. This reaction was observed in all of the 425 sera tested regardless of their control reaction.

DISCUSSION

In the two previous papers of this series the difference in the effect of the ultraviolet rays (2500-3000 A) and the diathermy short waves (12 m) have been brought out. An examination of Tables I and II will show that the effect produced on animal sera is the same as that produced on human sera. Therefore, it would appear that the same substances are being affected in the same manner in animal sera and in human sera by the supersonic waves. The results of these and previous experiments indicate that the "reagin" of syphilis is a normal constituent of human and animal sera, and that with disease in the human body it is either altered or increased in reactibility.

CONCLUSIONS

1. Ultraviolet ray tends to increase the titre of animal sera in the presence of antigen on short exposures.
2. Ultraviolet ray tends to convert positive animal sera to negative on long exposure.
3. Sera-antigen mixes on short exposure to diathermy tend to decrease in titre, while long exposure tends to increase the titre.

University of Arizona.

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NORMAL VALUES OF BLOOD

	Range	Average
Blood volume	75-85 cc. per kilogram of body weight	80 cc.
Blood cell volume	45-55% of whole blood	50%
Nonprotein nitrogen	25-38 mg. per 100 cc.	33.9 mg.
Urea nitrogen	11-16 mg. per 100 cc.	13.5 mg.
Mosenthal radio	20-44%	40%
Uric acid	0.7-3.7 mg. per 100 cc.	2.0 mg.
Creatinine	1-2 mg. per 100 cc.	1.5 mg.
Protein	6-2-8.0 Gm. per 100 cc.	
Albumin	3.6-5.0 Gm. per 100 cc.	
Globulin	2.0-3.5 Gm. per 100 cc.	
Carbon dioxide	55-77 volumes %	
Calcium	9-11 mg. per 100 cc.	10 mg.
Phosphorus	3-4.5 mg. per 100 cc	
Chlorides	450-500 mg. per 100 cc. (whole blood) 575-625 mg. per 100 cc. (plasma)	
Sugar	80-120 mg. per 100 cc	
Icterus Index	4-6	
Cholesterol	140-225 mg. per 100 cc.	190 mg.

—*Wisc. Med. J.*

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C. A. THOMAS, M. D.

At the recently concluded annual session of the Southwestern Medical Association in El Paso, Dr. C. A. Thomas of Tucson was elevated to the office of President. Serving as president-elect during the year just past, he succeeded Dr. Wm. H. Woolston of Albuquerque.

Dr. Thomas was born in 1877 in the rebel state of Mississippi, acquired his early schooling in that area, and later attended Mississippi State College for his academic training. Transferring to Tulane University in New Orleans, he obtained the degree Doctor of Medicine from that institution in 1905. From that date until 1912, Dr. Thomas practiced in Oklahoma. In the latter year he moved to Tucson, where he has since practised continually, excepting for an interval when he served his country as a Captain in the Medical Corps of the Army during World War I.

Among numerous honors and offices held by Dr. Thomas may be listed these: Past-President of his county medical society and the Arizona State Medical Association; Fellow of the American Medical Association and Fellow of the American College of Surgeons. Dr. Thomas is at present assistant chief surgeon of the Southern Pacific Railroad, Superintendent and Chief Surgeon of the Southern Pacific Sanatarium (Tucson), and senior member of the Thomas-Davis Clinic (Tucson). His practice is that of general surgery.

Dr. Thomas has long been sympathetically and intelligently interested in the problems and successes of organized medicine in the Southwest. He brings to the Southwestern Medical Association a wealth of administrative experience and ability, a quality greatly needed in the uncertainty of the trying present. The editors of Southwestern Medicine wish this new leader God-speed and all success.

RED CROSS COLLECTIONS

At the request of the Surgeons General of the Army and Navy, the American Red Cross will extend its blood collection program to key metropolitan cities on the Pacific coast and in the midwest.

At present seven eastern cities are engaged in the project. Collections are shipped by refrigerated express to a processing depot at Philadelphia where blood is reduced to dry plasma form for use by the Army and Navy. Arrangements are being worked out with biological laboratories in the midwest and Pacific areas for processing blood collections received from the cities to be added.

Plans for extending the collection program were announced following completion of a "pilot" project in which blood donors of the seven eastern cities filled an initial request of the Navy for 15,000 donations. Most of these, after being processed and hermetically sealed, already have been placed aboard U. S. fighting ships engaged in the Atlantic sea patrol.

Some 200,000 donors will be needed to fill current requests of our military and naval forces. Extension of the collection program will enable the Red Cross to meet these requests.

The first step in widening the blood collection program will be to set up collection depots at Los Angeles, San Francisco, Chicago, Detroit, St. Louis, Cleveland, Indianapolis, Cincinnati and Pittsburgh. Those cities now engaged in the program include New York, Philadelphia, Baltimore, District of Columbia, Buffalo and Rochester (N. Y.). As the program gains momentum, other cities will be added.

Biological laboratories undertaking the processing of the blood have agreed to do so on a non-profit basis.

SALE OF DANGEROUS DRUGS

According to the new Federal Food and Drug Act, the sale of certain drugs except on prescription is forbidden. Some which have been pronounced dangerous, and removed from general sale to the public are:

Aconite, aminopyrine, barbiturates, benzedrine sulfate (for internal use), cantharides, chrysarobin or goa powder, chrysophanic acid, cinchophen, neocinchophen and other derivatives, colchicum, colchicine, emetine, phosphides, phosphorus, radium, sulfanilamide, sulfapyridine, sulfathiazole, tansy, oil of tansy, thiocyanates, thyroid.

Anthelmintic drugs: carbon tetrachloride, tetrachlorethylene, male fern (aspidium), santonin, wormseed oil or chenopodium oil, thymol.

The bromides should not be sold without prescription if the dosage calls for more than 30 grains per day, or more than 15 grains in any three-hour period.

The same thing is true for a total daily intake of more than 5 grains of acetanilid, or more than two and one-half grains of the same during any three-hour period.

Bromide-acetanilid combinations should not provide for more than a total daily dosage of 15 grains of sodium bromide and five grains of acetanilid, or more than seven and one-half grains of sodium bromide and two and one-half grains of acetanilid during any three-hour period.

Preparations providing a daily dose of more than 15 grains of acetophenetidin, or more than 15 grains of antipyrine are dangerous..

Epinephrine in solutions of one per cent or stronger, cannot safely be used indiscriminately. The same is true of ipecac in daily doses of more than 10 grains, and strychnine in daily doses greater than one-twentieth grain.

Combinations of therapeutically effective proportions of digitalis, squill, strophanthus or other pharmacologically related drugs may not be safe for indiscriminate distribution.

Henceforth the drugs listed may not be sold except on prescription from a physician, dentist or veterinarian. Others will be added to the above as time passes. This is a splendid move on the part of the government in the interest of public safety.

AUTOPSIES

Physicians should not need reminding that their entire science is based on the basic foundation of chemistry, anatomy, bacteriology, physiology and pathology. To know disease one must know how it affects human tissues. To learn that, as one knows his ABC's pathology must be observed grossly and microscopically, first hand, at the autopsy. In the busy rush of the day's effort to make a living, far too many of us neglect to make the best use of our autopsy material and opportunities. All of us know that we elected a life-time of study in this profession, yet it is so easy to slip into the pernicious habit of deferring study opportunities until a magic tomorrow.

Pathology is not a dead, static thing—to those in the know it is excitingly alive, and brisk with progress. When you can get the modern pathologist to talk plainly and simply about his work there is apt to flow a lot of good sense and a lot of grand truth. With that thought in mind we publish in this issue one of the best pieces on autopsies we've seen in many a day. The article is "The Permission Necropsy." Read it—you'll find it worth your while.

COMMUNICATIONS

Sir:

In our endeavor to offer physicians and surgeons throughout the nation the opportunity of competing for professional positions in the California state service, we wish to solicit your support and assistance. We are anxious to call to the attention of the best qualified men and women throughout the nation the opportunities of employment in the California institutions in professional capacities. This offer is even more attractive at the present time because of a recent change in California law allowing accredited physicians and surgeons to practice in state mental institutions and homes for the feeble-minded for one year without first having a State of California license.

We would appreciate it if a mention could be made in your medical journal of these opportunities and suggest that physicians and surgeons who are interested in California state employment should correspond with the State Personnel Board. Yours very truly,

WILLIAM K. SMITH,
Acting Executive Officer.

1015 L Street,
Sacramento, Cal.

Sir:

According to a joint statement issued on September 4 by the U. S. Director of the Office of Civilian Defense, F. H. LaGuardia, and the Chairman of the American National Red Cross, Norman H. Davis, State and local defense councils are the official agencies responsible for the coordination of all available resources which may be required for civilian protection in the event of belligerent action. Defense Councils should therefore acquaint themselves with the resources of the local Red Cross Chapters in providing food, clothing, shelter, nursing care, transportation, and other basic necessities and should integrate them into the comprehensive local program. Duplication of trained and experienced personnel and of available supplies of the Red Cross should be avoided except where supplementation is essential to meet the anticipated needs of the community.

You are at liberty to publish the above paragraph in the Journal of your State organization. Very truly yours,

GEORGE BAEHR, M. D.
Chief Medical Officer
Office of Civilian Defense.

Sir:

The annual meeting of the American Association for the Advancement of Science is to be held in Dallas, Texas, from December 29, 1941, to January 3, 1942. This is the first occasion that the Association has held its annual meeting in Dallas. The attendance on this occasion over the past four years has been well over five thousand. Naturally, we do not anticipate such an enthusiastic response because of the problem of distance and difficulties of traveling during the Christmas holidays. Nevertheless, there will be a substantial representation of scientists and the Association is most anxious to have a very exceptional meeting. Section N is devoted to the medical sciences and for several years has prepared most outstanding symposia, the papers for which have been subsequently published in monographed form and are a substantial contribution to the science of medicine. This year a symposium on Relapsing Fever has been organized. It will be held on Tuesday, December 30. We ask your cooperation in bringing this meeting to the attention of the medical profession. Every interested individual is invited to attend regardless of whether he is a member of the American Association or not.

Thanking you in advance, I am

Cordially Yours,
M. H. SOULE,
Secretary,
Section N, A. A. A. S.

P. S.: We have just learned the final details as to place; therefore, the complete information is:

Symposium on Relapsing Fever
Section N, A. A. A. S.
Medical Arts Building
1717 Pacific Avenue, Dallas, Texas
December 30, 1941
Session 1—9:30 a. m. Session 2—2:00 p. m.

Cordially Yours,
M. H. SOULE.
Secretary, Section N.

NEWS

General

The first of a series of pamphlets outlining medical provisions for civilian defense, designed for the organization of emergency medical field units, entitled "Emergency Medical Service for Civilian Defense" Bulletin No. 1, has been issued by the Office of Civilian Defense.

The Bulletin outlines in considerable detail a basic plan for the organization and expansion of hospital facilities along both seaboards and in industrial areas in the interior. It also outlines plans for the rapid expansion of nursing facilities through intensive training of adequate numbers of Volunteer Nurses' Aides and other nursing auxiliaries.

The pamphlet describes the changed technique of warfare predicated upon the bombing of civilians as necessitating preparation for providing medical service to casualties through establishment of Medical Field Units. It declares the organization of such facilities must be a fundamental part of the civilian defense program.

After outlining, in diagram form, the struture of Emergency Medical Service, the pamphlet thereupon describes in detail the basic organization plan under the following topical subheadings:

1. Local Chief of Emergency Medical Service (responsible for coordinating all local emergency medical facilities).

2. Local Medical Advisory Council on Civilian Defense (includes representation from the health department, hospital field, local Red Cross Chapter, and municipal and volunteer agencies).

3. Emergency Medical Field Units.

The pamphlet prescribes the personnel of the Emergency Field Unit, divided into squads on call for each 12-hour shift, including physicians, nurses and nursing auxiliaries.

The squads are designed for communities varying in population from 25,000 to 50,000 and 100,000.

The Bulletin was prepared by the Medical Division of the Office of Civilian Defense, of which Dr. George Baehr, Medical Director, U. S. Public Health Service, is Chief Medical Officer, and the Medical Advisory Board, of which he is chairman. It will be distributed by State Councils of Civilian Defense to local Directors of Civilian Defense.

The written examination and review of case histories (Part I) for Group B candidates of the American Board of Obstetrics and Gynecology will be held in the various cities of the United States and Canada on Saturday, January 3, 1942, at 2:00 P. M. Formal notice of the place of examination will be sent each candidate several weeks in advance of the examination date. No candidate will be admitted to examination whose examination fee has not been paid at the Secretary's Office. Candidates who successfully complete the Part I examination will proceed automatically to the Part II examination held in June 1942.

Candidates for *reexamination* in Part I (written paper and submission of case histories) must request such reexamination by writing the Secretary's Office not later than November 15, 1941. Candidates who are required to take reexamination must do so before the expiration of three years from the date of their original examination.

The general oral and pathological examinations (Part II) for all candidates (Groups A and B) will be conducted by the entire Board, meeting at Atlantic City, N. J., in June 1942, immediately prior to the annual meeting of the American Medical Association.

Applications for admission to Group A, Part II, examinations must be on file in the Secretary's Office not later than March 1, 1942.

As previously announced in the Board booklet, this fiscal year (1941-1942) of the Board marks the close of the two groups of classification of applications for examination. Thereafter, the Board will have only one classification of candidates, and all will be required to take the Part I examinations.

For further information and application blanks, address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6), Pennsylvania.

Employment registers are to be established by the Civil Service Commission to fill maternal and child health specialist positions in the Children's Bureau of the Department of

Labor. Vacancies in similar positions in State agencies cooperating with the Children's Bureau may also be filled from these registers at the request of the States concerned. The examination announcement just issued by the Civil Service Commission to recruit persons for these positions which pay from $3,200 a year to $5,600 a year allows the filing of applications until November 15, 1941.

There are three options in which persons may qualify—pediatrics, obstetrics, and orthopedics. For each of these options employment lists will be established for administrative, research, and clinical positions. The duties of the administrative positions include giving consultations and advisory service to State and other Government agencies carrying out maternal and child health programs. The research positions involve the planning or directing of studies in such fields as infant and maternal mortality, and child growth in relation to social, economic and other factors. Persons appointed to clinical positions will do clinical work in one of the options.

A written test will not be given for these positions. Competitors will be rated on their education, experience and corroborative evidence. Applicants must have graduated from a medical school of recognized standing with an M. D. degree and must have served a 1-year interneship. In addition they must have had full-time post-interneship clinical training as well as other appropriate experience in the option selected and in the type of work in which they seek appointment.

Persons who wish to apply for this examination should be advised that further information and application forms may be obtained from the Commission's representative at any first- or second-class post office or from the central office in Washington, D. C.

El Paso

The El Paso County Medical Society met on October 13, 1941, at Cortez Hotel. Dinner was served. The program:

"Surgical Treatment of Hypertension".....
.....Dr Ralph M. Stuck, Denver, Colorado

At the staff meeting and dinner of the Southwestern General Hospital on September 25, the annual election of officers was held. The following were named to serve for the coming year: Dr. Jas. J. Gorman, chief of staff; Dr. Chester Awe, vice-chief of staff; Dr. David Cameron, secretary.

The regular Staff Meeting of the Hotel Dieu Sisters' Hospital was held October 7th in the auditorium of the Nurses' Home. Lunch was served.

The program:

A case report of surgical shock.....
.....Dr. B. F. Stevens
Discussion.....Dr. E. B. Rogers

New Mexico

Dr. M. J. Poppen, a former associate with Drs. Whitcomb and Elliott, who left the first of the year for San Diego to take up active duties as a medical officer in the naval reserve, is now stationed with the American occupation forces in Iceland. While Dr. Poppen is on duty Mrs. Poppen is residing in Raton, having an apartment in the El Portal.

—Raton Range.

MISCELLANY

CARCINOGENS AND HORMONES IN CANCER RESEARCH

The number of known chemical carcinogenic agents is large. There is no evidence that a definite chemical structure is necessary for carcinogenic activity. These chemicals vary from simple acids and alkalis (HCL, NOH), metal salts ($ZnCl_2Zn\ SO_4$), radio-active compounds (thorotrast), sugars (glucose), to complicated dyes (dimethylaminoazobenzene), hydrocarbons (3:4 benzpyrene, 1:2:5:6 dibenzanthracene, methylcholanthrene), estrogens (complicated sterols), and viruses (heavy proteins).

Methods for testing the carcinogenic action of the chemicals have been evolved by careful laboratory investigations.

The "average time" required for tumor production is that which is required to produce tumors in about one-half of the animals tested.

The "effective total" is that number of animals which is still living when the first tumor appearance is observed.

The "maximum effective" or limiting dosage" is important as an indication of the quantity of the carcinogenic agent to which the tissues can show a response. The limiting dosage varies from species to species.

There is an intrinsic factor for cancer susceptibility or resistance handed down in inheritance. This factor may not necessarily be genic, but extrachromosomal at times as well. Pure strain animals make possible better controlled observations.

Sex and season should be taken into consideration. Also the vehicle-solvent may not be disregarded.

The known life histories and spontaneous tumor incidence are important.

The carcinogens may unmask the latent spontaneous potentialities of the strain. Certain chemical carcinogens seem to have selective action on certain tissues.

Epithelial growths, sarcomas, and visceral carcinomas can now be induced by chemical means.

Different species have tendencies toward different types of tumors. Each species has its own characteristic tumor rate, organ susceptibility, and latent period. It varies with the strain.

The carcinogenic chemicals have a toxic action. Locally, they damage the tissues so that the reaction to them is imperfectly developed. Their initial effect is one of growth inhibition. The damaged tissues may release substances which modify the neighboring cells much as Spemann's evocators do. The cancerization appears to originate in the region but not directly at the site of application of the carcinogen. All the strongly positive carcinogenic chemicals cause some hemolysis. Most of the powerful carcinogens have a photodynamic action. But light is not essential for tumor production. The chemical carcinogens undergo metabolic changes in the body.

In attempting to detoxify these chemical agents, the essential sulphur containing aminoacids may be used up. Some of the carcinogens are changed in the liver and intestine giving different fluorescence spectra than the originals. They are eliminated as sulphonated and phenolic compounds in some cases. There are general systemic effects following their application noted in the blood, lymphoid apparatus, vascular system, and kidneys.

This process may be considered as one of physiological aging. In young animals the carcinogens precipitate the changes toward senility. Tumor age is shortened (Murray, Mider and Morton, 95).

The hormones are naturally occurring potential carcinogens. Under ordinary circumstances their functions are physiological regulation. In repeated forced action they may become potent carcinogens. The estrogens may be rapidly destroyed by oxidation in the liver. They are excreted in the urine and feces.

Many hormones are synergistic with or antagonistic to other hormones. They can be studied by accentuation of their normal action or by complete removal of the organ responsible for them. Under such circumstances overdevelopment of certain organs may occur; or atrophy.

Cancers may be induced in the overdeveloped organs or prevented by not having an organ to function.

The process of cancerization still remains a mystery in its final steps.—*S. G. & O.*

CANCER OF THE UTERUS

A total of 845 cases of gynecological cancer treated at Harper Hospital during 1922-1935 inclusive was analyzed and the absolute 5 and 10 year survivals studied.

In the main a combination of surgery and radiation therapy was used whenever possible, excepting the carcinoma of the cervix uteri. Of the agents employed for the irradiation, the radium, in the form of intracavitary application with the largest possible doses, was always given prime consideration. The roentgen rays were relegated to the secondary role of making up the deficiency of dosage at various points, especially toward the periphery of the irradiated pelvis. The gradual replacement since 1933 of the deep roentgen therapy (200 kilovolt constant, 1 millimeter copper) with the supervoltage roentgen therapy (500 to 600 kilovolt constant, 7 millimeters copper) has not changed this conception. Only the cases not amenable to surgery and unsuitable for intracavitary radium were treated by roentgen therapy alone.

Attention may be called to the following facts for the individual groups:

1. In cancer of the cervix uteri, radiation therapy, with few exceptions, constitutes the method of preference. The increase of the radium dose to the maximum tolerable has raised the 5 and 10 year survivals from 16 to 12 per cent to 21 and 15 per cent, respectively, and the supplanting of deep roentgen therapy with supervoltage roentgen therapy has now brought up the 5 year survival to practically 35 per cent.

2. In carcinoma of the fundus uteri, and in those cases of carcinoma of the cervix uteri in which a hysterectomy is performed, the optimum time for the operation is within 6 to 10 weeks following the completion of a preliminary series of radiation therapy consisting of intracavitary radium and external roentgen therapy. Further roentgen therapy is given in the postoperative period. By thus proceeding, the 5 year survivals were increased to 71 per cent as compared to 55 per cent when the operation was done first. The absolute 5 year survival of all cases treated since the introduction of supervoltage roentgen therapy approaches 50 per cent.

3. In carcinoma of the ovary a combination or alternation of surgery and radium therapy is used freely. The 5 and 10 year survivals continued to move around 20 and 18 per cent, respectively, throughout the entire period. Contrary to expectation, supervoltage roentgen therapy has brought no improvement in the survival curve.

4. In carcinoma of the external genitalia, the indications for operation and radiation therapy are greatly individualized. In lesions around the vulva, operation becomes the major procedure, whereas for skin cancers of the labia and especially the carcinomas of the vaginal canal one may have to rely entirely on radiation therapy. The 5 year survivals for the entire group represent 16 per cent and the 10 year survivals run a close parallel.

All in all, it appears that notable progress has been made in the treatment of gynecological cancer. The absolute survival curves obtained so far, thought not the apogees of achievement, represent results which can not but encourage us to further increase our efforts in combating this very malignant disease.—*S. G. & O.*

SULFONAMIDE DOSAGES

Dosage of Sulfanilamide

A. Severe infection.
Initial dose (oral): 0.10 gram per kilogram of body weight.
Subsequent doses (oral): Total daily dose based on 0.10 gram per kilogram, this to be divided in 6 parts and given q.4 h. day and night until 7 days of normal temperature have elapsed.

B. Mild and moderately severe infection.
Total daily dose based on 0.10 gram per kilogram of body weight, this to be divided into 6 parts and given q.4 h. day and night until 5 days of normal temperature have elapsed.

C. Hemolytic streptococcal otitis media, mastoiditis or osteomyelitis present a special problem because these infections involve bone. Sulfanilamide should be continued for at least 10 days after a *clinical* cure has been effected.

Dosage of Sulfapyridine and Sulfathiazole Pneumococcal Pneumonia

A. Adults.
Initial dose (oral) either 4.0 grams.
Subsequent doses (oral) either drug. 1.0 gram q. 4 h. day and night until the temperature has been normal for 72 hours.

B. Infants and children.
Initial dose (oral) either drug. 0.15 gram per kilogram up to 25 kilograms of body weight.
Subsequent doses (oral) either drug. Total daily dose is based upon 0.15 gram per kilogram up to 25 kilograms of body weight, this to be divided into 4 parts and given q. 6 h. day and night until the temperature has been normal for 48 hours.

Staphylococcal Pneumonia

A. Adults and children.
Sulfathiazole is the drug of choice. If satisfactory response is not obtained, increase the daily dose by 25 to 50 per cent. Continue until temperature has been normal for 5 days.

Dosage of Sulfathiazole in Staphylococcal Infections Other Than Pneumonia

A. Chemotherapy should not be used for boils, mild furneulosis, etc.

B. *Adequate surgical therapy* should *always be used* in conjunction with chemotherapy.
I. Diffuse staphylococcal cellulitis, lymphangitis, etc., in adults.
Initial dose (oral): 4.0 grams.
Subsequent doses: 1.5 grams q. 4 h day and night until the infection has ceased spreading. Then 1.0 gram q. 4 h. day and night for 7 days.

II. Staphylococcal bacteremia in adults.
Initial dose (oral): 4.0 grams.
Subsequent doses: 1.5 grams q. 4 h. until the temperature has been normal for 48 hours. Then 1.0 gram q. 4 h. for 14 days. Then 0.5 grams q. 4 h. for another 14 days.

III. Stapylococcal infections in infants and children. The initial subsequent doses are produced from those advised for adults in proportion to the weight of the infant or child.

Dosage of Sulfapyridine or Sulfathiazole in Treatment of Gonorrhea in the Male

Either drug may be used.

First day dose: 3.0 grams, *i.e.*, 0.5 gram at 3 hour intervals six times a day.

Subsequent doses (2nd to 10th days): 2.0 grams per day.

If by the 5th day of treatment a marked improvement in symptoms and signs of the disease has not taken place, shift to the other drug and carry on as outlined above. If a shift in medication has been made and after 5 days marked improvement is not observed, *stop drug therapy* and begin *conservative local treatment.* In any event *do not continue treatment with these drugs beyond 15 days in patients suffering from gonorrhea.*

Dosage of Sulfadiazine and Sodium Sulfadiazine in Treatment of Pneumococcal Pneumonia

A. Adults

1. Oral Therapy:
Initial Dose: Sulfadiazine—0.10 gram per kilogram of body weight.
Maintenance Dose: Sulfadiazine — 1.0 gram q.4 hours day and night until the temperature has been normal for three days.

2. Parenteral and Oral Therapy:
Initial Dose Parenteral: Sodium Sulfadiazine—0.10 gram per kilogram of body weight made up as 5% *solution* in *sterile distilled* water. (*Do not boil or autoclave.)* Administer slowly by the *intravenous route.*
Maintenance Dose Oral: Sulfadiazine — 1.0 grams q.4 hours day and night until the temperature has been *normal* for three days.

3. Parenteral Therapy:
Initial Dose: Sodium Sulfadiazine—0.10 gram per kilogram of body weight made up as a *5% solution* in *sterile distilled* water. (*Do not boil or autoclave.*) Administer slowly by the*intravenous route.*
Maintenance Dose: Sodium Sulfadiazine—0.05 gram per kilogram of body weight made up as a 5% *solulution* in *sterile distilled* water. *(Do not boil or autoclave.)* Administer slowly by the *intravenous route* q. 12 to 18 hours. Determine the blood concentration of the drug daily. Concentrations of more than 20 milligrams % are inadvisable. Change to oral therapy with sulfadiazine as soon as possible.

B. Infants and Children
The initial doses of sulfadiazine and sodium sulfadiazine are calculated and administered in the same way as for adults. The maintenance doses of sodium sulfadiazine are likewise estimated in the same manner. The total daily dose of *sulfadiazine* is calculated upon the basis of 0.10 gram per kilogram of body weight, is divided into *six parts* and is given at 4 hour intervals day and night until the temperature has been *normal* for *48* hours.

Dosage of Sulfadiazine and Sodium Sulfadiazine in Treatment of Hemolytic Streptococcic Infections

A. Mild and Moderately Severe Infections

1. Oral Therapy:
Initial Dose: Sulfadiazine — 0.05 gram per kilogram of body weight.
Total Daily Dose: Sulfadiazine — 0.10 gram per kilogram of body weight divided into six doses and given q.4 hours, day and night until the temperature has been *normal* for five days.

B. Severe Infections

1. Parenteral and Oral Therapy:
Initial Dose Parenteral: Sodium Sulfadiazine—0.15 gram per kilogram of body weight made up as a *5% solution* in *sterile distilled* water. *(Do not boil or autoclave.)* Administer slowly by the *intravenous* route.
Total Daily Dose Oral: Sulfadiazine—0.15 gram per kilogram of body weight, divided into six equal doses and given at 4 hour intervals, day and night until the temperature has been *normal* for five days. Then decrease dose of drug slowly until patient is ambulatory.

2. Parenteral Therapy:
Initial Dose: Sodium Sulfadiazine——as advised above.
Maintenance Dose: Sodium Sulfadiazine —0.05 gram per kilogram of body weight made up as a *5 per cent solution* in *sterile distilled* water. *(Do not boil or autoclave.)* Administer slowly by the *intravenous* route q.12 hours. Determine the blood concentration of the drug daily. Concentrations of more than 20 milligrams per cent are inadvisable. Change to oral therapy with sulfadiazine as soon as possible.

Parenteral Use of Sulfanilamide, Sulfapyridine or Sulfathiazole

Sulfanilamide: To be used only when oral medication is impossible.

Initial dose: 0.10 gram per kilogram of body weight made up in a 1 per cent solution in sterile physiological saline or 1/6 molar sodium racemic lactate.

Subsequent doses: 0.05 to 0.075 gram per kilogram of body weight in a 1 per cent solution, q. 6 to 8 h.

It is best to give solutions of sulfanilamide by the subcutaneous route. Oral administration of sulfanilamide should be started as soon as possible.

Sodium Sulfapyridine or Sodium Sulfathiazole: To be used only when oral medication is impossible or satisfactory concentrations of the drug cannot be obtained by oral administration.

Initial dose: 0.06 gram per kilogram of body weight of the sodium salt made up a 5 per cent solution of *sterile freshly distilled water. Do not try to sterilize by autoclaving or boiling.*

Subsequent doses: 0.03 gram per kilogram of body weight of the sodium salt in a 5 per cent solution repeated at about 6 hour intervals.

Always give slowly (10-15 minutes) by the intravenous route. Oral administration of sulfapyridine or sulfathiazole should be started *as soon as possible.*

—*N. W. Med.*

BLOOD FINDINGS IN PERNICIOUS ANEMIA

1. Erythrocytopenia — decreased number of red blood cells, often to 1,000,000 or less.
2. Leukopenia—total white cell count of 5,000 or less.
3. Thrombocytopenia — decrease in platelets, often to extreme low values.
4. Hypochromemia—decrease in hemoglobin but not in proportion to the decrease in number of red blood cells.
5. Hypoproteinemia—blood plasma protein less than 6 per cent.
6. Anisocytosis with the presence of large immature red cells as megalocytes and gigantocytes.
7. Nucleated red blood cells with the presence of normoblasts, megaloblasts or gigantoblasts.
8. Poikilocytosis, with a tendency to oval forms—ovalocytosis.
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10. Polychromatophilia.
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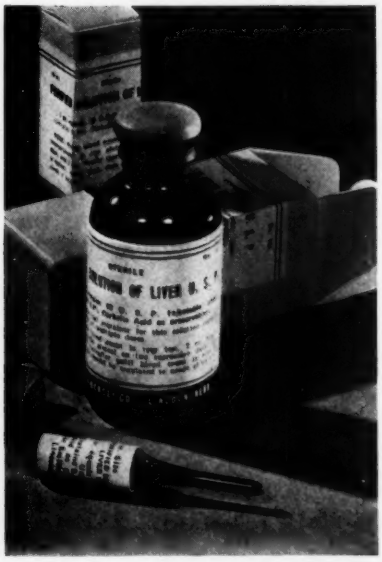

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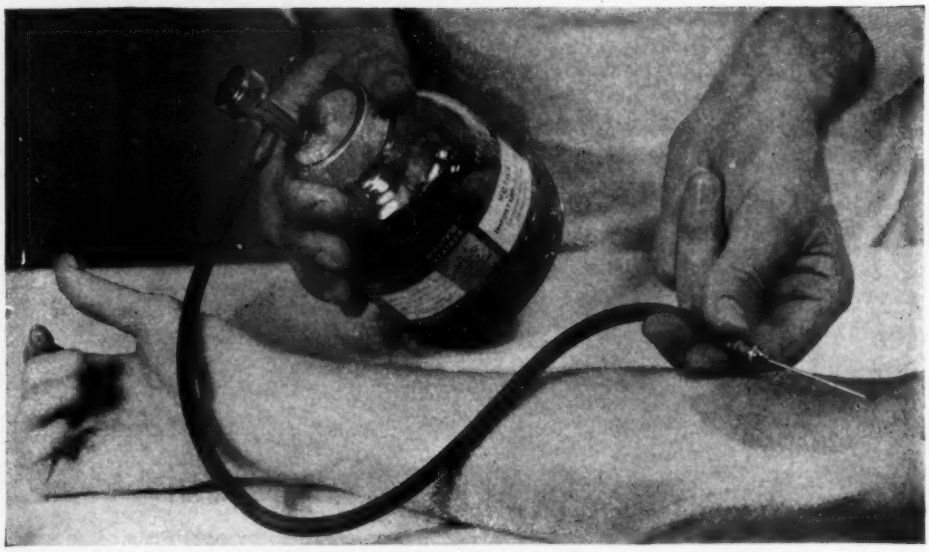

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12. Color index above 1.0—a hyperchromic or rarely normochromic anemia.
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—*J. Mis. St. Med. Assoc.*

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Nurses are needed for work in the Panama Canal. The Civil Service Commission has announced a special examination to recruit nurses for these jobs. No written test will be given and applications will be accepted at the Commission's Washington office until further public notice.

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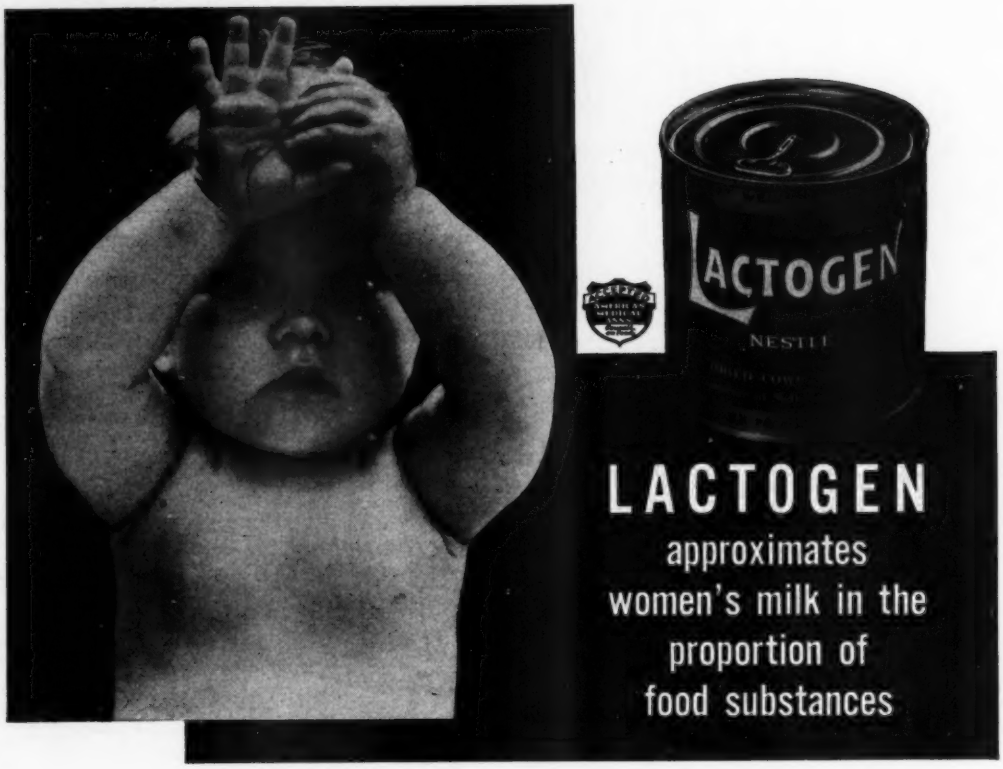

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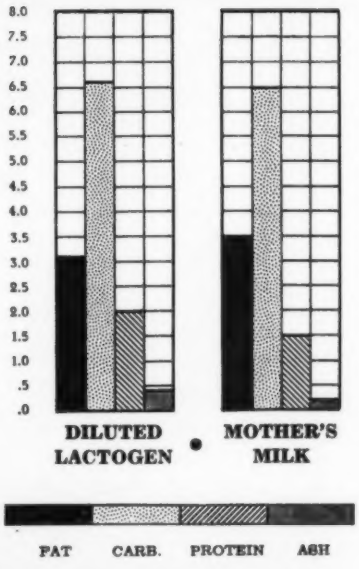
John Lovett Morse, A.M., M.D.
Clinical Pediatrics, p. 156



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1939	66.1	3879	1583	40%	676	42%
1938	65.6	3768	1491	39%	588	39%
1937	66.4	3398	1358	37%	387	28%
1936	64.5	3581	1374	38%	318	23%
1935	64.2	3491	1343	38%	366	28%
1934	64.3	3393	1131	33%	256	19%
1933	64.4	3354	1351	33%	107	9%
1932	64.1	3142	1101	38%	127	11%
1931	63.8	2952	1065	39%	114	10%
1930	63.7	2943	1059	35%	109	10%

—*Ill Med. J.*

BOOK NOTES

ABDOMINAL SURGERY OF INFANCY AND CHILDHOOD: By William E. Ladd, M. D., F. A. C. S., William E. Ladd, Professor of Child Surgery at Harvard Medical School; Chief of Surgical Service, The Children's Hospital, Boston; and Robert E. Gross, M. D., Associate in Surgery, the Harvard Medical School; Associate Visiting Surgeon The Children's Hospital; Associate in Surgery The Peter Bent Brigham Hospital, Boston. 455 pages with 268 illustrations. Philadelphia and London: W. B. Saunders Company, 1941. Price $10.00

Dealing mainly with the congenital aspects of abdominal surgery in infancy and childhood this text is a milestone in the advancement and understanding of pediatric surgery. No longer can the pediatric patient be considered as a diminutive man or woman but as a distinct entity with problems vastly different from the general run of surgical patients. Both the pediatrician and the surgeon will find much that is helpful in evaluating their surgical pediatric problems. In general, treatment for the most part is presented from both the conservative and radical viewpoints with the greater tendency towards conservatism. One cannot but recommend this book highly. —*V. M. Ravel.*

INFANTILE PARALYSIS. A Symposium Delivered at Vanderbilt University April, 1941. Pp 229. The National Foundation For Infantile Paralysis, Inc., New York City.

These six lectures were presented by unquestionably outstanding authorities in their field. They consist of history, etiology, immunilogical and serological phenomena, pathology and pathogenesis, and treatment and rehabilitation with reference to Poliomyelitis. With the exception of the last two chapters, most of the discussion deals mainly with experimental data, and the problems confronting the research man. The last chapter is devoted entirely to the treat-

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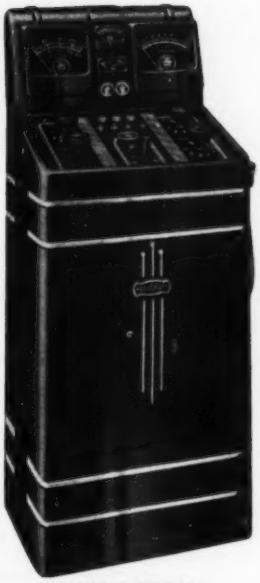

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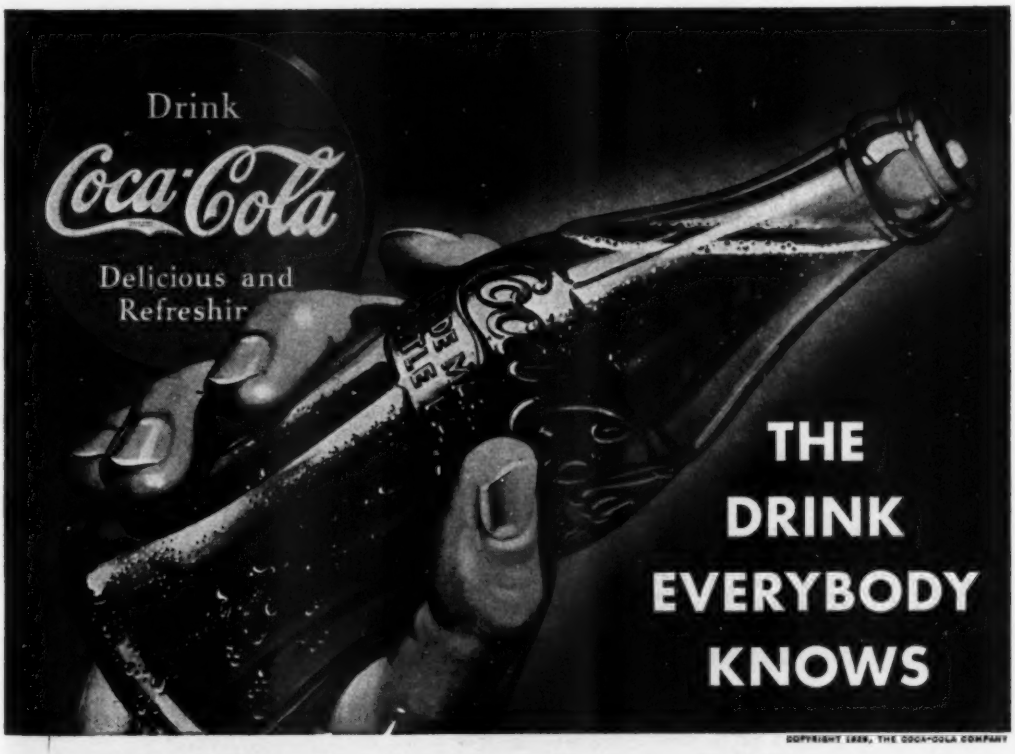

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ment and rehabilitation and would be of most interest to the clinician. Unfortunately this book does not contain the answer to this baffling disease. It does present some clues which we hope will make the next edition of this book one of the final chapters in our understanding of infantile paralysis.—*V. M. Ravel.*

EFFECTIVE LIVING: By C. E. Turner, A. M., Sc. D., Dr. P.h. Professor of Biology and Public Health, Massachusetts Institute of Technology; former Associate Professor of Hygiene Tufts Medical and Dental Schools; formerly Director of Health Education Studies, Malden, Mass.; Chairman of Health Section, World Federation of Education Associations—and Elizabeth McHose, B. S., M. A., Director of Physical Education for Girls and Chairman of the Health Council, Senior High School, Reading, Pa. 164 Illustrations. The C. V. Mosby Co.

This volume is written as a textbook for students of high school age, and as its title implies, is designed to furnish knowledge concerning health problems which will increase the efficiency of the individual in planning ways and means of preserving health. The book discusses exercises, care of the skin, nutrition, and the physiology of the major systems of the body. It goes into some detail in regard to heredity and family health problems, and discusses quite

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1. Knight, F., and Shelanski, H. A., "Treatment of Acute Anterior Urethritis with Silver Picrate," Am. J. Syph., Gon. & Ven. Dis., 23, 201 (March), 1939.

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THE CARE OF THE AGED: (Geriatrics) By Malford W. Thewlis, M. D. Attending Specialist, General Medicine, United States Public Health Hospital. New York City: Attending Physician, South County Hospital, Wakefield, R. I.: Special Consultant, Rhode Island Department of Public Health. 50 Illustrations. The C. V. Mosby Company.

This book of 579 pages is a valuable addition to the library of any practitioner of medicine. It contains a wealth of information and suggestions concerning treatment of the aged, which, if properly utilized, will make for improved efficiency in the care of this group of patients.

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